

## Momentum Quiz

Name \_\_\_\_\_ Block \_\_\_\_\_

1. A 1.00 kg grenade explodes into 3 pieces. 0.30 kg of the grenade moves North at 4.0 m/s and 0.35 kg moves off at 6.0 m/s, 30.0 degrees West of South.
  - a) Draw a diagram of the 3 pieces and label the likely direction of motion of the 3<sup>rd</sup> piece. (1 mark)
  - b) Draw a vector addition diagram of the momenta of the 3 pieces after the explosion. (2 marks)
  - c) What is the size and direction of the velocity of the remaining piece? (3 marks)
2. A 900.0 kg car moves North at 10.0 m/s while a 700.0 kg car moves East at 15.0 m/s. If they collide and stick together,
  - a) What is the velocity, size and direction, of the cars after the collision? (4 marks)
  - b) What is the size and direction of the impulse given to the 900.0 kg car? (4 marks, feel free to continue on the back if you run out of space)